Pond Buffers and Setbacks

General Information

Pond buffers and setbacks are features included into an overall dry detention or wet pond stormwater management facility design to achieve compliance goals for water quality and for safety purposes. Pond buffers and setbacks should not be confused with the regulatory Chesapeake Bay Preservation Area (CBPA) program 100 ft. Resource Protection Area (RPA) buffer. However, they do serve a distinct purpose for water quality by working in concert with other pond design features such as pretreatment sediment forebays, aquatic and safety benches, gentle interior pond perimeter side slopes, and landscaping. Target pollutant removal efficiencies assigned to stormwater management facilities approved for use in Virginia are based on the use of vegetative practices within stormwater management facility buffer areas and various planting zones. Pond buffers and setbacks have been in use as part of the County's stormwater management program since 1999 when the County BMP Manual was adopted as part of the County's Erosion and Sediment Control and Chesapeake Bay Preservation ordinances.

Starting in July 2014, the County became a designated Virginia Stormwater Management Program (VSMP) authority by the State Water Control Board and the Virginia DEQ. As such, criteria and standards associated with the Virginia Stormwater Management Program (VSMP) and the VPDES construction general permit program are now used by the County. These criteria and standards include, but are not limited to, the Virginia Runoff Reduction Method (VRRM), the Virginia BMP Clearinghouse website, the Virginia DEQ Stormwater Design specifications (15 non-proprietary BMPs), and the revised Virginia Stormwater Management Handbook.

Based on Virginia DEQ Stormwater Design Specifications No. 14 (Wet Ponds) and No. 15 (Extended Detention Pond), a pond buffer extends a minimum of 25 feet outward from the maximum water surface elevation of the stormwater management facility, which is usually the design high water surface elevation within the basin for the 100-year frequency design storm. Permanent structures (e.g., buildings) should not be constructed within the buffer area and existing trees should be preserved in the buffer area during construction.

The general intent of pond buffers and setbacks around the interior of stormwater management facilities is tri-fold:

1. Protection: Minimizes flooding risks to permanent structures by providing adequate horizontal & vertical separation to the design high water of the BMP, or higher, should the facility become impaired due to malfunction, clogging, or storms in excess of the 100-year design frequency (hurricanes, tropical storms, a nor'easter, etc.)

2. Runoff: Provides an adequate natural vegetative buffer between impervious, managed lawn (turfgrass), landscaping areas, and the interior shoreline of the stormwater management/BMP facility. This encourages natural uptake of nutrients, sediment deposition, filtering, and infiltration processes. Least desirable is managed lawn or turf to the water's edge. Fertilizers and pesticides from lots could otherwise reach the facility and cause undesirable effects such as algae blooms, excessive or nuisance plant growth, or higher nutrient loadings. Also, buffers provide shoreline erosion protection and shade to minimize thermal increases.

3. Access: The pond buffer is one of many safety features built into a BMP design. Naturally vegetated buffers tend to keep facilities screened, hidden, and discourage access directly to the water's edge. Conversely, managed lawn or turfgrass directly to the pond shoreline results in direct access to the water pool and may result in the increased chance of geese or waterfowl populations.

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Standards, Mitigation & Waiver Process for Encroachments

Encroachment into the pond buffer/setback due to clearing, grading, filling, and placement of permanent structures requires Engineering and Resource Protection Division review and approval.

If encroachment such as clearing, filling, or placement of permanent structures is within the area of the stormwater management facility's design high water elevation (ie. 100-year design storm) storage volume, it must be ensured that the permanent structures are sufficiently elevated vertically so that there are no effects from pond flooding. If soil fill is proposed it will be required that an analyses be performed and/or a statement be provided from a qualified professional certifying that there is no significant rise in the design water surface elevation of the stormwater facility such that it would affect the facility's structural integrity or stormwater function and that there is no effect to the rise in the design water pool such that there could be flooding on adjacent lands, lots or structures around the perimeter of the stormwater management facility.

Existing trees should be preserved in the buffer area during construction to the greatest extent possible. If impacts due to construction occur, replanting of the buffer is necessary. Native trees, shrubs and ground covers should be utilized to the greatest extent possible to restore the area back to original conditions or to resemble natural meadow or forest area. In some cases, onlot runoff reduction practices such as rain gardens (bioretention), soil amendments, nutrient-turf management, or rooftop (impervious surface) disconnection in accordance with Virginia DEQ Stormwater Design Specification No. 1 can be effectively used as a substitute or in combination with the pond buffer to provide equivalent water quality benefits.

Periodic mowing of the pond buffer is only required along maintenance or access corridors needed to maintain important features of the stormwater management facility such as embankment or forebay or if an unrelated utility is present such as a public water line or sanitary sewer easement. The remaining buffer can be managed as a meadow (mowing every other year) or forest.

Application & Fees

In accordance with Section 23-15(7) of the County's Chesapeake Bay Preservation ordinance, a nonrefundable processing fee of $25 shall accompany each application for a pond buffer/setback waiver request.

The request can be in simple letter or email format. The request needs to indicate address, subdivision or project name, lot number, and County parcel identification number (PIN) of the subject lot or area and identification of proposed impacts to the 25 ft. pond buffer/setback (clearing, grading, filling, permanent structures, etc.). A map needs to be provided to show the lot, structure, design high water elevation of the stormwater management facility, the 25 ft. buffer/setback, and the area of impact. The area of impact needs to be labeled and quantified (square feet). The waiver request needs to state what measures will be used to mitigate the impact such as preserving existing vegetation, replanting with native plants, conservation landscaping, or other measures that will be used such as onlot runoff reduction techniques.

For awareness and education purposes, any waiver requests to the County should be from the current or future owner, tenant or occupant, rather than from the builder, developer or contractor (if possible).

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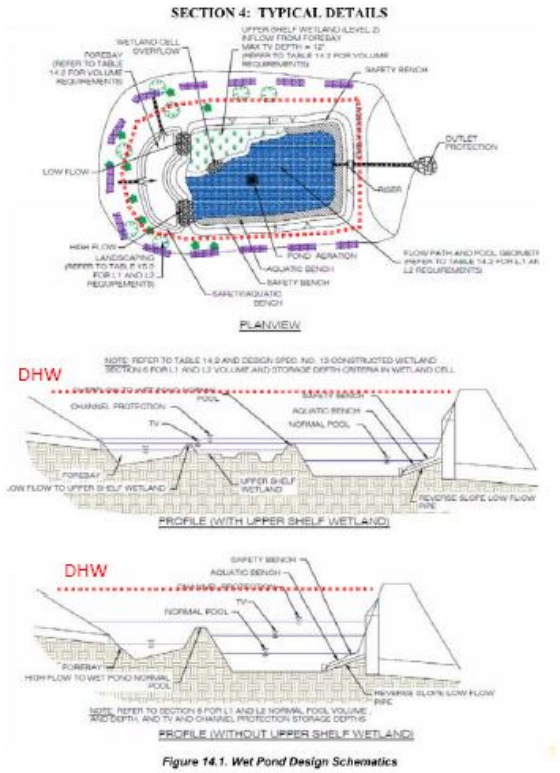

Figure 14.1. Wet Pond Design Schematics

POND BUFFER / SETBACK

Design High Water (100-year)

25 ft. Pond Buffer/Setback Line

A vegetated buffer should be provided that extends at least 25 feet outward from the maximum water surface elevation of the wet pond. Permanent structures (e.g., buildings) should not be constructed within the buffer area. Existing trees should be preserved in the buffer area during construction.

The maintenance plan should clearly outline how vegetation in the pond and its buffer will be managed or harvested in the future. Periodic mowing of the stormwater buffer is only required along maintenance rights-of-way and the embankment. The remaining buffer can be managed as a meadow (mowing every other year) or forest. The maintenance plan should schedule a shoreline cleanup at least once a year to remove trash and floatables.